Chapter A3. CLEANING OF EQUIPMENT FOR WATER SAMPLING

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ABSTRACT

The *National Field Manual for the Collection of Water-Quality Data (National Field Manual)* provides protocols and guidelines for U.S. Geological Survey (USGS) personnel who collect data used to assess the quality of the Nation's surface-water and ground-water resources. Chapter A3 describes procedures for cleaning the equipment used to collect and process water samples and for assessing the efficacy of the equipment-cleaning process. This chapter is designed for use with the other chapters of this field manual.

Each chapter of the *National Field Manual* is published separately and revised periodically. Newly published and revised chapters will be announced on the USGS Home Page on the World Wide Web under "New Publications of the U.S. Geological Survey." The URL for this page is <http://water.usgs.gov/lookup/get?newpubs>.

INTRODUCTION

As part of its mission, the U.S. Geological Survey (USGS) collects data needed to assess the quality of our Nation's water resources. The *National Field Manual for the Collection of Water-Quality Data (National Field Manual)* describes protocols (requirements and recommendations) and provides guidelines for USGS personnel who collect data on the Nation's surface-water and ground-water resources. Chapter A3 describes procedures for cleaning the

equipment used to collect and process samples of surface water and ground water and procedures for assessing the efficacy of the equipment-cleaning process.

The *National Field Manual* is Section A of Book 9 of the USGS publication series Techniques of Water-Resources Investigations (TWRI). Each chapter of this manual is published as a separate report. Chapter numbers are preceded by an “A” to indicate that the report is part of the *National Field Manual*. Other chapters and sections of other chapters of the *National Field Manual* are referred to in this report by the abbreviation "NFM" and the specific chapter and (or) section number. For example, general information on field measurements of ground water is covered in section 6.0.2 of Chapter A6, "Field Measurements," and would be cited as NFM 6.0.2.

PURPOSE AND SCOPE

The *National Field Manual* is targeted specifically toward field personnel in order to *(*1*)* establish and communicate scientifically sound methods and procedures, *(*2*)* provide methods that minimize data bias and, when properly applied, result in data that are reproducible within acceptable limits of variability, *(*3*)* encourage consistent use of field methods for the purpose of producing nationally comparable data, and (4) provide citable documentation for USGS water-quality data-collection protocols.

The equipment-cleaning procedures presented in this chapter are adequate for routine environmental conditions. A modification of the cleaning procedures might be required, for example, in order to decontaminate equipment adequately after sampling at sites where analyte concentrations are large. Modifications to the standard procedures described in this chapter must be documented and quality controlled.

REQUIREMENTS AND RECOMMENDATIONS

As used in the *National Field Manual*, the terms required and recommended have USGS-specific meanings.

Required (require, required, or requirements) pertains to USGS protocols and indicates that a specific USGS Office of Water Quality (OWQ) policy has been established on the basis of research and (or) consensus of the technical staff and has been reviewed by water-quality specialists and District[1] or other professional personnel, as appropriate. Technical memorandums or other unpublished documents that define the policy pertinent to such requirements are cited in this chapter. Personnel are instructed to use required equipment or procedures as described in this chapter. Departure from or modifications to the stipulated requirements that might be necessary to accomplish specific data-quality requirements or study objectives must be based on referenced research and good field judgment and must be quality assured and documented.

Recommended (recommend, recommended, or recommendation) pertains to USGS protocols and indicates that USGS Office of Water Quality policy recognizes that one or several alternatives to a given procedure or equipment selection are acceptable on the basis of research and (or) consensus. Specific data-quality requirements, study objectives, or other constraints affect the choice of recommended equipment or procedures. Selection from among the recommended alternatives should be based on referenced research and good field judgment, and reasons for the selection should be documented. Departure from or modifications to recommended procedures must be quality assured and documented.

[1]District refers to a water-data collecting organizational unit of the USGS located in any of the States or Territories of the United States.

FIELD MANUAL REVIEW AND REVISION

Chapters of the *National Field Manual* will be reviewed, revised, and reissued periodically to correct any errors, incorporate technical advances, and address additional topics. Please send comments or corrections to NFM-QW, USGS, 412 National Center, Reston, VA 20192 (or send electronic mail to nfm-owq@usgs.gov). Information regarding the status and any errata of this and other chapters can be found at the beginning of the electronic version of each chapter, located in the Publications Section of the following website: http://water.usgs.gov/lookup/get?owq.

Newly published and revised chapters will be announced on the USGS Home Page on the World Wide Web under "New Publications of the U.S. Geological Survey." The URL for this page is <http://water.usgs.gov/lookup/get?newpubs>.

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